

CLAIMS

- sub. a5
1. A method for providing information to a pilot of a vehicle via a display, the method comprising the steps of:
 - a) indicating a current attribute of said vehicle on said display;
 - b) receiving a target attribute for said vehicle;
 - c) determining a first capture attribute for said vehicle to obtain said target attribute from said current position; and
 - d) displaying said first capture attribute on said display in conjunction with said current attribute of said vehicle.
 2. The method of claim 1 wherein said first capture attribute is determined and displayed relative to said current attribute.
 3. The method of claim 1 wherein said first capture attribute is determined and displayed relative to said target attribute.
 4. The method of claim 1 wherein:
 - said current attribute is the current position of said vehicle;
 - said target attribute is a target position to be captured; and
 - said first capture attribute is a first capture initiation position such that said target position will be captured.
 5. The method of claim 4 further comprising the steps of:
 - a) receiving a maximum permissible overshoot;
 - b) determining a last capture initiation position such that said target position to be captured will be overshoot by no more than said maximum permissible overshoot, wherein the region between said first capture initiation position and said last capture initiation position forms a capture region; and
 - c) displaying said capture region relative to said current vehicle position.
 6. The method of claim 1 further comprising the steps of:
 - a) computing a trajectory to said target attribute; and
 - b) displaying said trajectory relative to said current attribute of said vehicle.
- sub. B1

7. The method of claim 5 further comprising the steps of:
 - a) computing an overshoot region within which initiation of capture will result in overshoot of said target position to be captured by more than said maximum permissible overshoot; and
 - b) displaying said overshoot region relative to said target position to be captured.
8. The method of claim 5 further comprising the steps of:
 - a) computing an overshoot region within which initiation of capture will result in overshoot of said target position to be captured by more than said maximum permissible overshoot; and
 - b) displaying said overshoot region relative to said target position to be captured.
9. The method of claim 7 wherein said target position is a path.
10. The method of claim 9 wherein
said position indicator is an altitude indicator,
said current vehicle position is a current vehicle altitude,
said first capture initiation position is a first capture initiation altitude,
said last capture initiation position is a last capture initiation altitude, and
said path is an increasing altitude path.
11. The method of claim 9 wherein
said position indicator is an altitude indicator,
said current vehicle position is a current vehicle altitude,
said target position is a target altitude,
said first capture initiation position is a first capture initiation altitude,
said last capture initiation position is a last capture initiation altitude, and
said path is a decreasing altitude path.
12. The method of claim 7 wherein
said position indicator is an altitude indicator,
said current vehicle position is a current vehicle altitude,
said target position is a target altitude,
said first capture initiation position is a first capture initiation altitude,

said last capture initiation position is a last capture initiation altitude, and
said target position is an assigned altitude.

13. The method of claim 12 wherein said first capture initiation altitude is a function of vertical speed error and is proportional to $\frac{E_{vs} \cdot |E_{vs}|}{2 \cdot C \cdot g}$.
14. The method of claim 12 wherein said vehicle is an aircraft.
15. The method of claim 12 wherein the altitude indicator is an altitude tape.
16. The method of claim 12 wherein the permissible overshoot is 250 feet.
17. A digital storage medium having instructions stored thereon configured to execute the method of claim 12.
18. A digital storage medium having instructions stored thereon configured to execute the method of claim 5.
19. A method for providing feedback comprising the steps of:
 - a) providing an automated control system;
 - b) providing an altitude tape;
 - c) providing a target altitude;
 - d) displaying on said altitude tape a current aircraft altitude;
 - e) displaying on said altitude tape a target indicator representing said target altitude; and
 - f) displaying on said altitude tape a path capture trajectory relative to said current aircraft altitude and corresponding to said target altitude indicator; wherein said path capture trajectory is determined by said automated control system.
20. The method of claim 19 wherein said automated control system is an auto-pilot system.
21. The method of claim 20 wherein said target altitude is a constant altitude.
22. The method of claim 20 wherein said target altitude is defined by a path of ascending altitude.

23. The method of claim 20 wherein said target altitude is defined by a path of descending altitude.
24. The method of claim 20 wherein said target altitude is defined by a path computed as a function of vertical speed error.
25. The method of claim 19 wherein the target indicator is a first icon, the current aircraft altitude is displayed by a second icon, and the path capture trajectory is displayed by a third icon.
26. The method of claim 19 wherein the display screen is located in an aircraft.

27. A display for an aircraft comprising:

- a sliding scale altitude indicator,
a target altitude indicator on said sliding scale altitude indicator,
a current altitude indicator on said sliding scale altitude indicator,
a capture region indicator on said sliding scale altitude indicator, and
an overshoot region indicator on said sliding scale altitude indicator.

28. The display of claim 27 wherein said target altitude indicator is displayed relative to said current altitude indicator and represents an assigned altitude.

29. The display of claim 27 wherein said capture region indicator is displayed relative to said current altitude indicator and indicates the first and last points for initiating capture.

30. The display of claim 27 wherein said capture region indicator is displayed relative to said target altitude indicator and indicates the first and last points for initiating capture.

31. The display of claim 27 wherein said overshoot region indicator is displayed relative to said current altitude indicator and indicates a permissible range of overshoot.

32. The display of claim 27 wherein said overshoot region indicator is displayed relative to said target altitude indicator and indicates a permissible range of overshoot.

33. The display of claim 27 wherein said sliding scale altitude indicator is an altitude tape.

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